REMARKS

Applicant respectfully requests reconsideration of this application in view of the foregoing amendment and following remarks.

Status of the Claims

Claims 16 and 17 are pending in this application, and stand rejected. By this amendment, claims 16 and 17 are amended. No new matter has been added by this amendment.

Objections

Claim 17 has been indicated as depending from a canceled claim (i.e., claim 11). In response, claim 17 has been amended to correctly depend from claim 16.

Applicant respectfully requests that this objection be withdrawn.

Rejection under 35 U.S.C.§ 103

Claims 16 has been rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over U.S. Patent No. 6,963,374 to Nakamura et al. ("Nakamura") in view of U.S. Patent No. 6,847,388 to Anderson ("Anderson") and U. S. Patent No. 6,847,388 to Taniguchi et al. ("Taniguchi"). Claim 17 has been rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Nakamura in view of Anderson and Taniguchi, and further in view of U.S. Patent No. 6,961,085 to Sasaki ("Sasaki").

Claim 16 has been amended simply for further clarification without adding new matter. One of the aspects of the present invention as featured in amended claim 16 is directed to an image sensing apparatus having two memory areas (i.e., first and second areas) each alternately stores first RAW data and second RAW data obtained in a first image sensing operation and a second image sensing operation performed next to the first image sensing operation, respectively. In particular, each of the first and second areas of the memory is configured to store the RAW

data from the first and second operations alternately. When the image sensing device outputs third RAW data obtained in a third image sensing operation, the image sensing apparatus of the present invention is configured in such a way that (1) a color space conversion operation for the first RAW data is performed in accordance with the start of reading the second RAW data, (2) the color space conversion for the first RAW data is performed at the same time (i.e., in parallel) as the white balance integral processing of the second RAW data (i.e., while the second RAW data are read from the image sensing element), (3) the display device displays the object image of the third RAW data after the color space conversion of the first RAW data and the integral processing of the second RAW data, (4) the white balance calculation device calculates the white balance coefficient of the second RAW data while the display device displays the object image of the third RAW data (i.e., after the parallel processing of the color space conversion of the first RAW data and the white balance integral processing of the second RAW data), and (5) the third RAW data are stored in the first area where the first RAW data used to be stored.

With the features of the present invention as discussed above, the necessary time required to prepare (ready) for a next shooting is reduced in a sequential shooting of images. See, e.g., the background section of the present application.

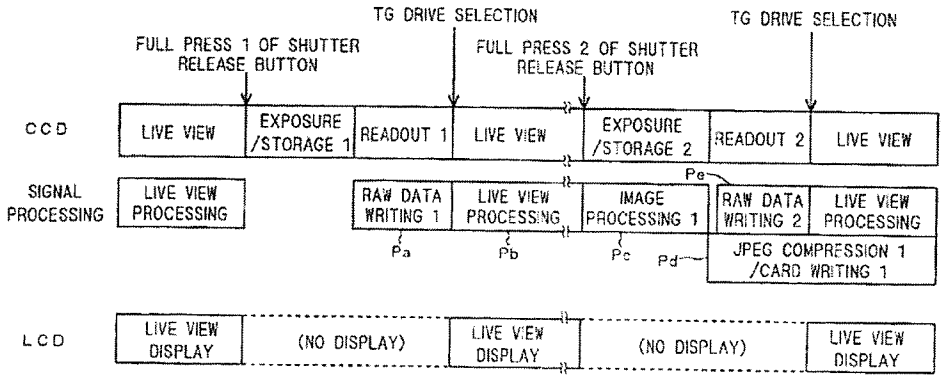
The Office Action at least admits, *inter alia*, that Nakamura fails to teach a processing device configured to process a color space conversion for the first RAW data in accordance with start of reading the second RAW data. [page 5 of the Office Action] The Office Action then cites Anderson as teaching, *inter alia*, that the memory stores the third RAW data in the first area and the processing device processes a color conversion for the first RAW data in accordance with start of reading the second RAW data. [page 6 of the Office Action] Specifically, the Office Action describes, *inter alia*, that:

> Nakamura et al. alone does not explicitly teach that the integral processing for the second RAW data by said white balance integration device and the color space conversion for first RAW data by said image processing device processes are performed in parallel during reading of the second RAW data from the image sensing element. However, because the white balance integration taught by Nakamura et al. is performed during the raw data writing ("Pe"), and thus in parallel with the readout of the second image data (see figure 8, column 7, lines 41-49), the combination of Nakamura et al. and Anderson teaches that that integral processing of the second image data and the color space conversion of the first image data are performed in parallel. This is because Anderson modifies Nakamura et al. such that the image processing of the first image data (which includes color space conversion) readout from the first area of memory takes place concurrently with the readout of second RAW image data from the image sensor (which includes integration) and into the second area of memory, as discussed above. [pages 7-8 of the Office Action] (emphasis added)

Nakamura discloses a digital camera technique in which the time of not displaying a live view image (e.g., on a LCD view finder) is shortened thereby preventing a shutter release opportunity from being missed. Referring to Fig. 8 of Nakamura as shown below, Applicant notes that a high-priority live view (Pb) is performed between RAW data writing (Pa) of image signals outputted from a CCD into memory and captured image processing (Pc). Applicant notes that while Nakamura discloses performing RAW DATA WRITING 2 during READOUT 2, however, it indeed does not perform IMAGE PROCESSING 1 (e.g., a color space conversion) during READOUT 2 as shown, e.g., in Fig. 8. Therefore, Nakamura fails to teach a parallel processing of the first and second RAW data as required by the present invention as featured in claim 16 as amended.

Also, the white balance integration of Nakamuara is not performed during the raw data writing (Pe) as indicated in the Office Action cited above, but performed before the raw data writing. For example, the cited portion of Nakamura by the Office Action (i.e., column 7, lines 41-49) actually describes that "[i]n step ST12, as in step ST9, raw data processed by the black level correction/white balance control part 211a is written into the DRAM 232 over the DMA

channel 1 (cf. an operation Pe of FIG. 8). Although both the operations Pd and Pe require access to the DRAM 232 utilizing DMA, the arbitration by the bus controller 218 allows alternate access by these operations; therefore, outwardly, the operations Pd and Pe are performed concurrently. A higher bus band of the DRAM 232 permits smoother arbitration." Moreover, as is clear from this description, there is nothing in the cited portion that teaches the white balance integration is performed during the raw data writing ("Pe"), and thus in parallel with the readout of the second image data as indicated by the Office Action.



Additionally, while the apparatus disclosed in Nakamura performs LIVE VIEW PROCESSING, JPEG COMPRESSION, and CARD WRITING during LIVE VIEW operation, it does not perform a white balance calculation, as required by the present invention, as discussed above. Nakamura further fails to teach the memory structure of the present invention where the first and second areas are configured to store the RAW data alternately.

In summary, Nakamura fails to teach the inventive aspects as indicated above, i.e., (1) a color space conversion operation for the first RAW data is performed in accordance with the start of reading the second RAW data, (2) the color space conversion for the first RAW data is performed at the same time (i.e., in parallel) as the white balance integral processing of the

second RAW data (i.e., while the second RAW data are read from the image sensing element), (3) the display device displays the object image of the third RAW data after the color space conversion of the first RAW data and the integral processing of the second RAW data, (4) the white balance calculation device calculates the white balance coefficient of the second RAW data while the display device displays the object image of the third RAW data (i.e., after the parallel processing of the color space conversion of the first RAW data and the white balance integral processing of the second RAW data), and (5) the third RAW data are stored in the first area where the first RAW data used to be stored.

Anderson discloses a method of providing instant review of a last captured image in an image capture device in which a user can access a play mode and a review mode while the last captured image undergoes processing by the image processing system. The Office Action cites several portions of Anderson (i.e., figure 4a, col. 4, line 59 - col. 6, line 3; col. 6. lines 38-56; col. 8, line 59 - col. 9, line 8) and indicates, *inter alia*, that "the processing device processes a color conversion for the first RAW data readout from said first area in accordance with start of reading the second RAW data from the image sensing element." However, there is simply nothing in Anderson including the cited portion that teaches that the color conversion of the first RAW data is performed with the start of reading the second RAW data. For example, a portion of Anderson (i.e., col. 7, lines 19-22) merely describes that "[t]he raw image data placed into the input buffers 538 is also processed for extracting exposures, focus, and white balance settings."

Additionally, Applicant further notes that Anderson discloses a so-called "parallel processing" as shown, e.g., Figs. 4A and 4B. As Applicant understands it, however, the apparatus disclosed in Anderson has input buffers for n pieces of RAW data that correspond to a number of input RAW data, and does not have a structure in which two areas are alternately used

as required by the present invention. Furthermore, Anderson is silent in disclosing the kind of image processing performed during the live view operation, as required by the present invention. Even if Anderson teaches these elements, Anderson can not remedy the lacking elements (indicated as (1) through (5)) in Nakamura as discussed above.

Each of Taniguchi and Sasaki is cited as disclosing an white balance integration device and a defect correction device, respectively. However, neither Taniguchi nor Sasaki shows or suggests the inventive aspects of amended claim 16 discussed above.

Accordingly, each of claims 16, and 17 in depending from claim 16, is believed patentable over the cited references (i.e., Nakamura, Anderson, Taniguchi and Sasaki), either taken alone or in combination, for at least the reasons discussed above.

Reconsideration and withdrawal of the rejections of claims 16 and 17 under 35 U.S.C. §103(a) is respectfully requested.

Applicant has chosen in the interest of expediting prosecution of this patent application to distinguish the cited documents from the pending claims as set forth above. However, these statements should not be regarded in any way as admissions that the cited documents are, in fact, prior art.

Applicant believe that the application as amended is in condition for allowance and such action is respectfully requested.

AUTHORIZATION

No petitions or additional fees are believed due for this amendment and/or any accompanying submissions. However, to the extent that any additional fees and/or petition is required, including a petition for extension of time, Applicant hereby petitions the Commissioner to grant such petition, and hereby authorizes the Commissioner to charge any additional fees, including any fees which may be required for such petition, or credit any overpayment to Deposit Account No. 13-4500 (Order No. 1232-5191). A DUPLICATE COPY OF THIS SHEET IS ENCLOSED.

An early and favorable examination on the merits is respectfully requested.

Respectfully submitted,
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AUTHORIZATION

No petitions or additional fees are believed due for this amendment and/or any accompanying submissions. However, to the extent that any additional fees and/or petition is required, including a petition for extension of time, Applicant hereby petitions the Commissioner to grant such petition, and hereby authorizes the Commissioner to charge any additional fees, including any fees which may be required for such petition, or credit any overpayment to Deposit Account No. 13-4500 (Order No. 1232-5191). A DUPLICATE COPY OF THIS SHEET IS ENCLOSED.

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